



UpNext

ASCEND

**The first step towards
cryogenic electric propulsion**

ASCEND intends to demonstrate the potential and feasibility of a cryogenic and superconducting powertrain to breakthrough aircraft electric propulsion performances.

PURPOSE

Boost Airbus by accelerating future technologies

VISION

Fly the future of aerospace, Incubate talent, Inspire Airbus transformation

AMBITION 2025

Be THE reference for Technology Value Assessment
Be recognized as an inspiring place to work
Act as entrepreneurs

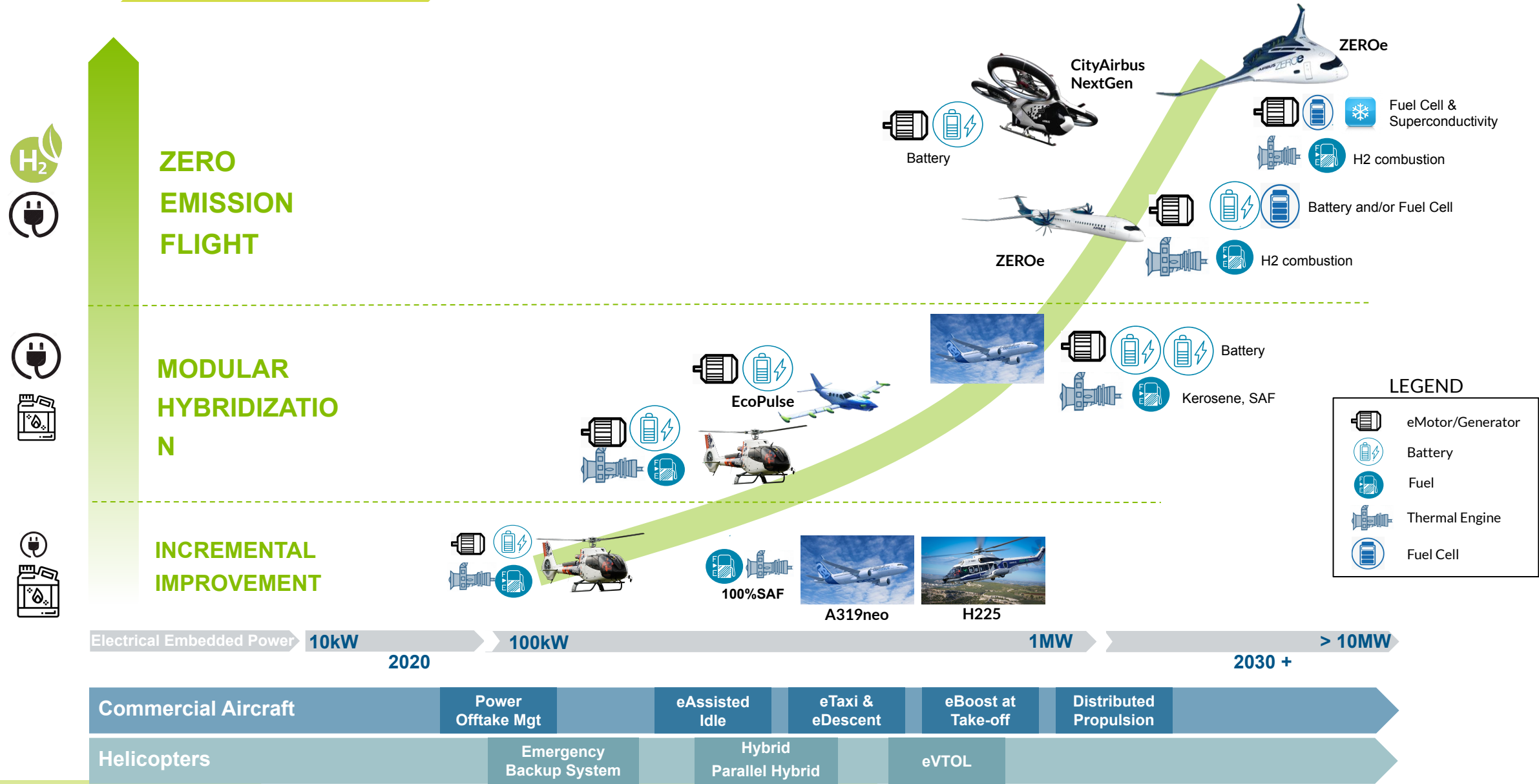
VALUES Keep it Simple, Be Audacious, Exploring Together
Mindset

DNA Speed Of Execution, Caring for Each Other, Open to the World
Unique value proposition

UpNext

AIRBUS

Energy-related technologies to reduce aviation's carbon footprint

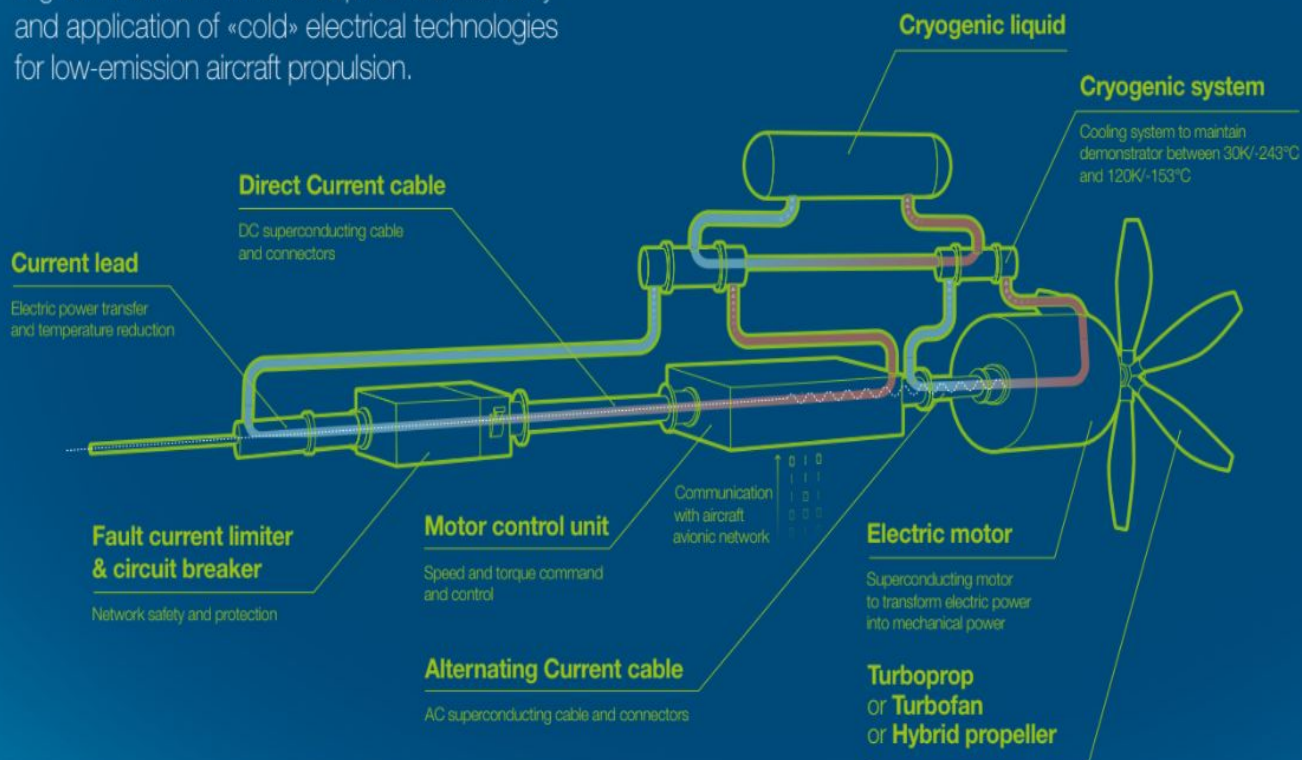


A Superconducting Powertrain 300V/ 500kW

ASCEND

Advanced Superconducting & Cryogenic Experimental powertrain Demonstrator

A ground demonstrator to explore the feasibility and application of «cold» electrical technologies for low-emission aircraft propulsion.



Usage of superconducting and cryogenic technologies allows to*:



Halve weight of components



Reduce voltage to below 500V



Halve electrical losses

*compared to conventional technologies

AIRBUS

3 years
to

Breakthrough high power electric systems

- Low voltage (< 500V)
- Reduce weight and volume
- Increase efficiency (+ 5-10%)
- Enable high torque motors, fault current limiters



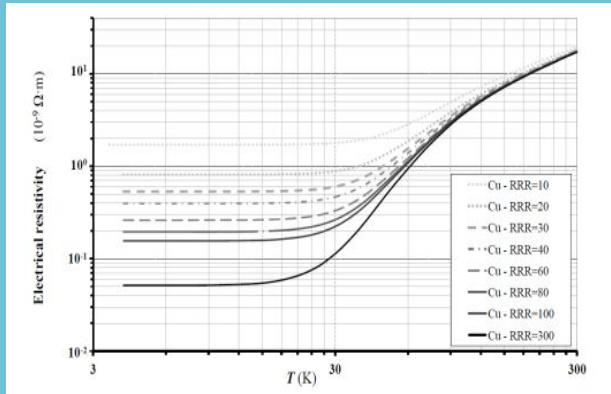
For Propulsive & Non-propulsive systems

AIRBUS

Cryogenic technologies?

Cryogenic

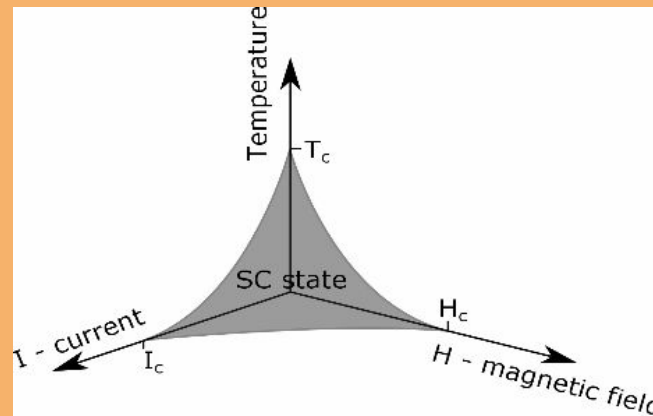
Conventional techno at low temperatures



- losses divided by 3 to 5
- increase thermal properties

Superconductivity

Specific materials below 3 parameters



- no DC losses
- Carry >100 times more current than copper
- Perfect diamagnetism

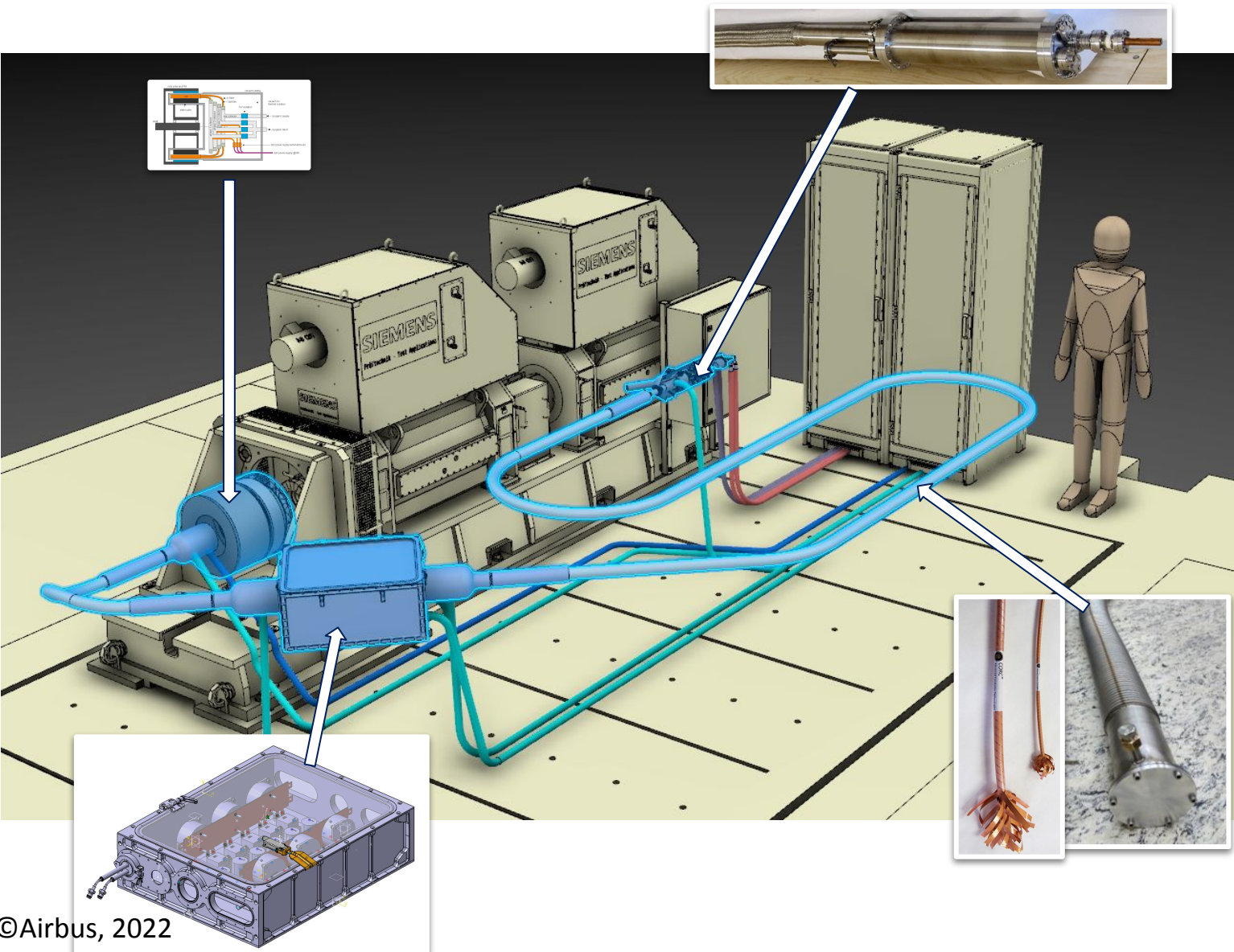
An opportunity for electrical systems



Reduce weight & volume

Increase efficiency & Current density

Demonstrator development




**Good progress on
Preliminary design**



- No showstopper
- Electrical performances above expectations

but

- Challenges on cryogenic components



thank you &
keep moving

UpNext

© Copyright Airbus UpNext (YEAR)

This document and all information contained herein is the sole property of Airbus UpNext. No intellectual property rights are granted by the delivery of this document or the disclosure of its content. This document shall not be reproduced or disclosed to a third party without the expressed written consent of Airbus UpNext. This document and its content shall not be used for any purpose other than that for which it is supplied. Airbus, its logo and product names are registered trademarks.

AIRBUS